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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

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| IN RE APPLICATION OF | : |
| STEPHAN HUEFFER, ET AL. | : EXAMINER: KHAN, AMINA |
| SERIAL NO: 10/524,047 | : |
| FILED: OCTOBER 13, 2005 | : GROUP ART UNIT: 1796 |
| FOR: FORMULATION FOR USE IN CHROME-FREE AND CHROME TANNING | : |

APPEAL BRIEF

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Further to the January 18, 2008 Notice of Appeal, this is an Appeal from the October 18, 2007 Final Rejection.

## I. REAL PARTY IN INTEREST

The real party in interest in this appeal is BASF SE, Ludwigshafen, Germany.

## II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' legal representative and the assignee are aware of no appeals, interferences, or judicial proceedings which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

## III. STATUS OF CLAIMS

Claims 14-17, 21, 22, 24, 26, 28, 30, 32, 34, 36 and 38 are pending and stand rejected.

Claims 1-13, 18-20, 23, 25, 27, 29, 31, 33, 35 and 37 have been cancelled.

The rejections of claims 14-17, 21, 22, 24, 26, 28, 30, 32, 34, 36 and 38 are being appealed.

## IV. STATUS OF AMENDMENTS

No Amendment After Final Rejection has been filed.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 32 is directed to a method for chrome-free and chrome tanning, in which an animal hide is contacted with a particular formulation. *See* instant specification, page 1, lines 7 to 8; claim 32. The formulation includes a clay mineral and one or more substances selected from the group consisting of organic polymers, aldehyde tanning agents, sulfone tanning agents, resin tanning agents, phenol tanning agents, fatliquoring agents, vegetable tanning agents, dyes, pigments and mixtures thereof. *See* instant specification, page 2, lines 23 to 34; claim 32. The clay mineral, after vigorous stirring for 30 minutes in water at 50°C, has a number average particle diameter of less than 2 $\mu$m, or a bimodal size distribution. *See* instant specification, page 2, lines 23 to 34; claim 32. In the case where the clay mineral has a bimodal distribution, the clay mineral includes a first, finely divided

fraction, whose number average particle diameter is less than 0.5 $\mu$m, and a second, coarser fraction, whose number average particle diameter is less than 5 $\mu$m, determined in each case by the method according to ISO 13320-1, by combined laser light diffraction and light scattering. *See* instant specification, page 2, lines 23 to 34; claim 32. The amount of the first, finely divided fraction is from 10 to 90% by weight relative to the total weight of the clay mineral. *See* instant specification, page 2, lines 23 to 34; claim 32. The clay mineral is a phyllosilicate selected from the group consisting of kaolinite, smectite, muscovite, montmorillonite, bentonite, hectorite and mixtures thereof. *See* instant specification, page 3, lines 33 to 35; claim 32. Claims 14-17, 21, 22, 24, 26, 28, 30, 34, 36 and 38 depend directly or indirectly from claim 32. *See* claims 14-17, 21, 22, 24, 26, 28, 30, 34, 36 and 38.

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

### A. Rejection Under 35 U.S.C. 103 (Komforth and Cramer)

Claims 32, 34 and 36 are rejected under 35 U.S.C. §103(a) over U.S. Patent No. 6,033,590 to Komforth et al. ("Komforth") in view of U.S. Patent Application Publication No. US 2002/0192366 to Cramer et al. ("Cramer").

### B. Rejection Under 35 U.S.C. 103 (Komforth and Zorn)

Claims 14-17, 21, 22, 24, 26, 28, 30, 32, 34, 36 and 38 are rejected under 35 U.S.C. §103(a) over Komforth in view of U.S. Patent No. 3,053,697 to Zorn et al. ("Zorn").

### C. Rejection Under 35 U.S.C. 103 (Plapper and Cramer)

Claims 14, 16, 21, 24, 30 and 32 are rejected under 35 U.S.C. §103(a) over U.S. Patent No. 4,272,242 to Plapper et al. ("Plapper") in view of Cramer.

### D. Rejection Under 35 U.S.C. 103 (Plapper and Christner)

Claims 14, 16, 21, 24, 30 and 32 are rejected under 35 U.S.C. §103(a) over Plapper in view of U.S. Patent No. 5,102,422 to Christner et al. ("Christner").

## VII. ARGUMENT

Appellants submit that the outstanding rejections should be reversed for the following reasons.

### A. Rejection Under 35 U.S.C. 103 (Komforth and Cramer)

As indicated above, claims 32, 34 and 36 are rejected under 35 U.S.C. §103(a) over Komforth in view of Cramer.

Claim 32 recites "[a] method for chrome-free and chrome tanning, comprising contacting an animal hide with a formulation comprising: a clay mineral, which ... has a number average particle diameter of less than 2 μm, or a bimodal size distribution with a first, finely divided fraction, whose number average particle diameter is less than 0.5 μm, and a second, coarser fraction, whose number average particle diameter is less than 5 μm ... and one or more substances selected from the group consisting of organic polymers, aldehyde tanning agents, sulfone tanning agents, resin tanning agents, phenol tanning agents,

fatliquoring agents, vegetable tanning agents, dyes, pigments and mixtures thereof ..." (emphasis added). Komforth and Cramer do not disclose or suggest such a method.

Komforth discloses compositions for retanning and fatliquoring leather. *See, e.g.,* Komforth, Abstract. The compositions of Komforth may include kaolin, as a carrier. *See, e.g.,* Komforth, column 4, lines 20 to 22. However, Komforth fails to disclose, in a single embodiment, a tanning composition including the components recited in claim 32. Also, it is undisputed that Komforth fails to disclose that the kaolin carrier should have any specific particle size, much less the particular particle size recited in claim 32. *See, e.g.,* October 18, 2007 Office Action, page 3.

The Examiner relies on Cramer to overcome the deficiencies of Komforth with respect to the particle size of the disclosed kaolin. *See* June 15, 2007 Office Action, page 6. Cramer discloses coating compositions that may include clay nanoparticles. *See* Cramer, paragraph [0043]. The disclosed nanoparticles may have a particle size of 2 to 750 nm. *See* Cramer, paragraph [0041]. However, the Examiner fails to demonstrate why one of ordinary skill in the art would modify the tanning composition of Komforth by employing clay nanoparticles having the particular particle size disclosed in Cramer as carriers. While Cramer indicates that the disclosed nanoparticles may achieve some desirable effects (*see, e.g.,* Cramer, paragraph [0040]), there is no indication in Cramer of why clay nanoparticles of the particular particle size disclosed therein would have any utility as carriers in a retanning or fatliquoring composition, such as employed in Komforth. In order to sustain a case of obviousness over a combination of references, there must be some apparent reason to combine their respective teachings. *See, e.g., KSR Int'l Co. v. Teleflex Inc.*, 82 U.S.P.Q.2d 1385, 1396 (U.S. 2007). The Examiner has failed to identify such an apparent reason.

For the reasons discussed above, a *prima facie* case of obviousness has not been made. However, even if a *prima facie* case were made, such case is rebutted by the results shown in the present specification – "[a] *prima facie* case of obviousness ... is rebuttable by proof that the claimed compounds possess unexpectedly advantageous or superior properties." *See* MPEP §2144.09 (citing *In re Papesch*, 315 F.2d 381 (C.C.P.A. 1963)). As discussed in the September 25, 2007 Amendment, the Examples of the present specification demonstrate that selecting a particular particle size or a particular particle size distribution for clay minerals used in a tanning process provides, unexpected superior results. In particular, the present specification shows that employing tanning compositions including clay minerals having particle sizes and particle size distributions that fall outside of the scope of claim 32 to provides, for example, inferior shaveability and shrinkage temperatures, in comparison with employing tanning compositions including clay minerals having particle sizes and particle size distributions that satisfy claim 32. *See, e.g.,* present specification, page 7, Table 1. These results are objective evidence of the improvements achieved when employing tanning compositions as recited in claim 32 over known methods of tanning, as disclosed in Komforth, and thus these results rebut any suggestion that it would have been obvious to modify the methods of Komforth in view of the teachings of Cramer.

It is apparent from the October 18, 2007 Office Action that the Examiner has not given due consideration to the experimental results set forth in the present specification and discussed in the September 25, 2007 Office Action. Appellants submit that such evidence must be taken into account in sustaining the outstanding obviousness rejections. *See, e.g.,* MPEP §2145. Proper consideration of the experimental evidence in the present specification is respectfully requested.

Neither Komforth nor Cramer discloses or suggests a treating a hide with a tanning composition including a clay mineral having a number average particle diameter of less than 2 $\mu$m, or a bimodal size distribution with a first, finely divided fraction, whose number average particle diameter is less than 0.5 $\mu$m, and a second, coarser fraction, whose number average particle diameter is less than 5 $\mu$m. Accordingly, the combination of Komforth and Cramer fails to disclose or suggest the combined features of claim 32.

As explained, claim 32 would not have been rendered obvious by Komforth and Cramer. Claims 34 and 36 depend from claim 32 and, thus, also would not have been rendered obvious by Komforth and Cramer. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

**B. Rejection Under 35 U.S.C. 103 (Komforth and Zorn)**

As indicated above, claims 14-17, 21, 22, 24, 26, 28, 30, 32, 34, 36 and 38 are rejected under 35 U.S.C. §103(a) over Komforth in view of Zorn.

Claim 32 is set forth above. Komforth and Zorn do not disclose or suggest such a method.

As discussed above, it is undisputed that Komforth fails to disclose that the kaolin carrier should have any specific particle size, much less the particular particle size recited in claim 32. *See, e.g.,* October 18, 2007 Office Action, page 3.

The Examiner relies on Zorn to overcome the deficiencies of Komforth with respect to the particle size of the disclosed kaolin. *See* October 18, 2007 Office Action, pages 3 to 4. Zorn discloses compositions for filling leather than has already been tanned. *See* Zorn, column 1, lines 11 to 13. The disclosed fillers may have a particle size of 0.05 to 50 µm. *See*

Zorn, column 2, lines 19 to 21. However, the Examiner fails to demonstrate why one of ordinary skill in the art would modify the tanning composition of Komforth by employing fillers having the particular particle size disclosed in Zorn as carriers. While Zorn indicates that the disclosed fillers may improve the plumpness of leather (*see, e.g.*, Zorn, column 1, line 20), there is no indication in Zorn of why fillers of the particular particle size disclosed therein would have any utility as carriers in a retanning or fatliquoring composition, such as employed in Komforth. The Examiner has failed to demonstrate an apparent reason to combine the respective teachings of Komforth and Zorn.

A *prima facie* case of obviousness has not been made. However, even if a *prima facie* case were made, such case is rebutted by the results shown in the present specification, as discussed above. The results are objective evidence of the improvements achieved when employing tanning compositions as recited in claim 32 over known methods of tanning, as disclosed in Komforth, and thus the results rebut any suggestion that it would have been obvious to modify the methods of Komforth in view of the teachings of Zorn.

Neither Komforth nor Zorn discloses or suggests a treating a hide with a tanning composition including a clay mineral having a number average particle diameter of less than 2 $\mu$m, or a bimodal size distribution with a first, finely divided fraction, whose number average particle diameter is less than 0.5 $\mu$m, and a second, coarser fraction, whose number average particle diameter is less than 5 $\mu$m. Accordingly, the combination of Komforth and Zorn fails to disclose or suggest the combined features of claim 32.

As explained, claim 32 would not have been rendered obvious by Komforth and Zorn. Claims 14-17, 21, 22, 24, 26, 28, 30, 34, 36 and 38 depend from claim 32 and, thus, also

would not have been rendered obvious by Komforth and Zorn. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

### C. Rejection Under 35 U.S.C. 103 (Plapper and Cramer)

As indicated above, claims 14, 16, 21, 24, 30 and 32 are rejected under 35 U.S.C. §103(a) over Plapper in view of Cramer.

Claim 32 is set forth above. Plapper and Cramer do not disclose or suggest such a method.

Plapper discloses compositions for tanning. *See, e.g.*, Plapper, Abstract. The compositions of Plapper may include aluminosilicates. *See, e.g.*, Abstract, column 4, lines 20 to 22. However, Plapper fails to disclose, in a single embodiment, a tanning composition including the components recited in claim 32. Also, it is undisputed that Plapper fails to disclose that the aluminosilicates should have the particular particle size recited in claim 32. *See, e.g.*, October 18, 2007 Office Action, page 5.

The Examiner relies on Cramer to overcome the deficiencies of Komforth with respect to the particle size of the disclosed aluminosilicates. *See* June 15, 2007 Office Action, page 6. Cramer discloses coating compositions that may include clay nanoparticles. *See* Cramer, paragraph [0043]. The disclosed nanoparticles may have a particle size of 2 to 750 nm. *See* Cramer, paragraph [0041]. However, the Examiner fails to demonstrate why one of ordinary skill in the art would modify the tanning composition of Plapper by employing clay nanoparticles having the particular particle size disclosed in Plapper. While Cramer indicates that the disclosed nanoparticles may achieve some desirable effects (*see, e.g.*, Cramer, paragraph [0040]), there is no indication in Cramer of why clay nanoparticles of

the particular particle size disclosed therein would have any utility in a tanning composition, such as employed in Plapper. The Examiner has failed to demonstrate an apparent reason to combine the respective teachings of Plapper and Cramer.

A *prima facie* case of obviousness has not been made. However, even if a *prima facie* case were made, such case is rebutted by the results shown in the present specification, as discussed above. The results are objective evidence of the improvements achieved when employing tanning compositions as recited in claim 32 over known methods of tanning, as disclosed in Plapper, and thus the results rebut any suggestion that it would have been obvious to modify the methods of Plapper in view of the teachings of Cramer.

Neither Plapper nor Cramer discloses or suggests a treating a hide with a tanning composition including a clay mineral having a number average particle diameter of less than 2 $\mu$m, or a bimodal size distribution with a first, finely divided fraction, whose number average particle diameter is less than 0.5 $\mu$m, and a second, coarser fraction, whose number average particle diameter is less than 5 $\mu$m. Accordingly, the combination of Plapper and Cramer fails to disclose or suggest the combined features of claim 32.

As explained, claim 32 would not have been rendered obvious by Plapper and Cramer. Claims 14, 16, 21, 24 and 30 depend from claim 32 and, thus, also would not have been rendered obvious by Plapper and Cramer. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

### D. Rejection Under 35 U.S.C. 103 (Plapper and Christner)

As indicated above, claims 14, 16, 21, 24, 30 and 32 are rejected under 35 U.S.C. §103(a) over Plapper in view of Christner.

As discussed above, it is undisputed that Plapper fails to disclose that the aluminosilicates should have the particular particle size recited in claim 32. *See, e.g.,* October 18, 2007 Office Action, page 5.

The Examiner relies on Christner to overcome the deficiencies of Plapper with respect to the particle size of the disclosed kaolin. *See* October 18, 2007 Office Action, pages 7 to 8. Christner discloses liquid enzyme compositions used in production of leather. *See* Christner, Abstract. The liquid enzyme compositions may include clays, such as bentonite. *See* Christner, column 5, lines 20 to 23. The disclosed clays may have a particle size of 0.05 to 5 μm. *See* Christner, column 5, lines 39 to 41. However, the Examiner fails to demonstrate why one of ordinary skill in the art would modify the tanning composition of Plapper by employing clays having the particular particle size disclosed in Christner. While Christner indicates that the disclosed clays may prevent creaming and settling in liquid enzyme compositions (*see, e.g.,* Christner, column 4, lines 61 to 65), there is no indication in Christner of why fillers of the particular particle size disclosed therein would have any utility in a tanning composition, such as employed in Plapper. The Examiner has failed to demonstrate an apparent reason to combine the respective teachings of Plapper and Christner.

A *prima facie* case of obviousness has not been made. However, even if a *prima facie* case were made, such case is rebutted by the results shown in the present specification, as discussed above. The results are objective evidence of the improvements achieved when employing tanning compositions as recited in claim 32 over known methods of tanning, as disclosed in Plapper, and thus the results rebut any suggestion that it would have been obvious to modify the methods of Plapper in view of the teachings of Christner.

Neither Plapper nor Christner discloses or suggests a treating a hide with a tanning composition including a clay mineral having a number average particle diameter of less than 2 $\mu$m, or a bimodal size distribution with a first, finely divided fraction, whose number average particle diameter is less than 0.5 $\mu$m, and a second, coarser fraction, whose number average particle diameter is less than 5 $\mu$m. Accordingly, the combination of Plapper and Christner fails to disclose or suggest the combined features of claim 32.

As explained, claim 32 would not have been rendered obvious by Plapper and Christner. Claims 14, 16, 21, 24 and 30 depend from claim 32 and, thus, also would not have been rendered obvious by Plapper and Christner. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

## VIII. CONCLUSION

For the above reasons, it is respectfully requested that all outstanding rejections of the pending claims be REVERSED.

Respectfully submitted,

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## CLAIMS APPENDIX

Claims 1-13 (Canceled)

Claim 14 (Previously Presented): The method as claimed in Claim 32, wherein said formulation comprises a clay mineral, which, after vigorous stirring for 30 minutes in water at 50°C, has a number average particle diameter of less than 2 $\mu$m determined by the method according to ISO 13320-1, by combined laser light diffraction and light scattering.

Claim 15 (Previously Presented): The method as claimed in Claim 32, wherein the one or more substances are selected from aldehyde tanning agents, and wherein the aldehyde tanning agents are glutaraldehyde or a derivative of glutaraldehyde.

Claim 16 (Previously Presented): The method as claimed in Claim 14, wherein the clay mineral has a number average particle diameter of less than 1 $\mu$m.

Claim 17 (Previously Presented): The method as claimed in claim 14, wherein said formulation further comprises one or more substances, which, owing to their chemical structure, are capable of forming strong hydrogen bridge bonds with the clay mineral.

Claims 18-20 (Cancelled)

Claim 21 (Previously Presented): The method as claimed in Claim 32, wherein the clay mineral has a number average particle diameter of less than 1 $\mu$m.

Claim 22 (Previously Presented): The method as claimed in Claim 30, wherein said formulation further comprises one or more substances, which, owing to their chemical structure, are capable of forming strong hydrogen bridge bonds with the clay mineral.

Claim 23 (Cancelled)

Claim 24 (Previously Presented): The method as claimed in claim 32, wherein the phyllosilicate is selected from the group consisting of kaolinite, montmorillonite, bentonite, and mixtures thereof.

Claim 25 (Cancelled)

Claim 26 (Previously Presented): The method as claimed in Claim 32, wherein said animal hide is a tanned animal hide.

Claim 27 (Cancelled)

Claim 28 (Previously Presented): The method as claimed in Claim 22, wherein the one or more substances which, owing to their chemical structure, are capable of forming strong hydrogen bridge bonds with the clay mineral, are selected from the group consisting of urea or urea derivates, alcohols, polyols, propylene carbonate, organic amides, urethanes, saccharides or derivatives of saccharides, nitrocellulose, sulfite cellulose, ethylhexylcellulose, and mixtures thereof.

Claim 29 (Cancelled)

Claim 30 (Previously Presented): The method as claimed in Claim 32, wherein said formulation comprises:

a clay mineral, which, after vigorous stirring for 30 minutes in water at 50°C, has a bimodal size distribution with a first, finely divided fraction, whose number average particle diameter is less than 0.5 $\mu$m, and a second, coarser fraction, whose number average particle diameter is less than 5 $\mu$m, determined in each case by the method according to ISO 13320-1, by combined laser light diffraction and light scattering, and wherein, the amount of the first, finely divided fraction is from 10 to 90% by weight.

Claim 31 (Cancelled)

Claim 32 (Previously Presented): A method for chrome-free and chrome tanning, comprising contacting an animal hide with a formulation comprising:

a clay mineral, which, after vigorous stirring for 30 minutes in water at 50°C, has a number average particle diameter of less than 2 $\mu$m, or a bimodal size distribution with a first, finely divided fraction, whose number average particle diameter is less than 0.5 $\mu$m, and a second, coarser fraction, whose number average particle diameter is less than 5 $\mu$m, determined in each case by the method according to ISO 13320-1, by combined laser light diffraction and light scattering, and wherein, the amount of the first, finely divided fraction is from 10 to 90% by weight;

and one or more substances selected from the group consisting of organic polymers, aldehyde tanning agents, sulfone tanning agents, resin tanning agents, phenol tanning agents, fatliquoring agents, vegetable tanning agents, dyes, pigments and mixtures thereof,

wherein the clay mineral is a phyllosilicate selected from the group consisting of kaolinite, smectite, muscovite, montmorillonite, bentonite, hectorite and mixtures thereof.

Claim 33 (Cancelled)

Claim 34 (Previously Presented): The method as claimed in Claim 32, wherein the clay mineral is muscovite.

Claim 35 (Cancelled)

Claim 36 (Previously Presented): The method as claimed in Claim 32, wherein the clay mineral is hectorite.

Claim 37 (Cancelled)

Claim 38 (Previously Presented): The method as claimed in Claim 17, wherein the one or more substances which, owing to their chemical structure, are capable of forming strong hydrogen bridge bonds with the clay mineral, are selected from the group consisting of urea or urea derivates, alcohols, polyols, propylene carbonate, organic amides, urethanes, saccharides or derivatives of saccharides, nitrocellulose, sulfite cellulose, ethylhexylcellulose, and mixtures thereof.

## EVIDENCE APPENDIX

None.

## RELATED PROCEEDINGS APPENDIX

None.